Dominance as a Moderator in the Relationship Between Leader's Warmth and Effectiveness

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Abstract: The study examines the relationship between a leader's warmth, dominance and three different indicators of leader effectiveness in the environment of a four-month long Managerial Simulation Game. Data about 184 CEOs were gained via self-reports, from the results of the simulation game, and from 3,330 of their followers. Each CEO completed an Interpersonal Checklist (ICL) and was evaluated, on average, by 18 followers in terms of her leadership emergence and perceived leader effectiveness. Group performance was assessed based on the results of game companies. Neither leader warmth nor leader dominance correlated with any of the three indicators of leader's effectiveness. The analysis of moderation effect however revealed a significant effect of interaction of leader warmth and dominance on group performance, perceived leader effectiveness, and leadership emergence. CEOs with greater warmth are less effective when possessing a low degree of dominance. On the contrary, the relationship between warmth and leader effectiveness is positive when the degree of dominance is high. An effective leader therefore has to be both warm and dominant. A low degree of dominance combined with excessive warmth might yield a counterproductive effect. The results of the study elucidate an underexplored relationship between leader warmth and effectiveness and illustrate the importance of examining various antecedents of leadership simultaneously.

Keywords: dominance, warmth, interpersonal traits, leadership, leader effectiveness, moderation

1. Introduction

In leadership research in the 20th century, two main paradigms have emerged – trait paradigm and behavioral paradigm (DeRue et al. 2011). The trait paradigm (also called the dispositional approach, Dinh and Lord 2012) dominated the initial decades of leadership research, followed by a few decades of subsequent skepticism about its veracity. However, at the turn of the millennium the trait paradigm regained attention from leadership scholars (Zaccaro 2007). This approach focuses on the dispositional precursors of effective leadership (Hoffman et al. 2011) – on leader traits. Leader traits are "relatively coherent and integrated patterns of personal characteristics, reflecting a range of individual differences, that foster consistent leadership effectiveness across a variety of group and organizational situations" (Zaccaro et al. 2004, p. 104). Out of all leader traits, the ones that have gained the greatest scholarly attention are the 'Big Five' traits (Prochazka et al. 2013) stemming from almost normative personality theory. On the contrary, interpersonal traits have been rather underexplored in the leadership research. Interpersonal traits can be defined as "...an attribute or adjective descriptive of the potentialities of an individual for interpersonal action" (Freedman et al. 1951, p. 161), and thusly can be related to work behavior and work performance more than general personality traits.

The model of interpersonal traits (or the circular model of interpersonal traits or interpersonal circumplex) described in 1950s by Leary, Freedman, LaForge and their colleagues (e.g. Freedman et al. 1951; LaForge et al. 1954) includes 16 interpersonal traits arranged into a circle around two major axes: a vertical axis of dominance (power) and a horizontal axis of warmth (love) (Leary, 1957). The model was originally created especially for clinical practice, but Leary also suggested its use for industrial management.

Among the interpersonal traits included in the interpersonal circumplex, 'dominance' has been the most researched as a predictor of leadership outcomes (Lord et al. 1986; Smith and Foti 1998; Foti and Hauenstein 2007). Judge et al. (2002) report in their meta-analysis a weak to moderate relationship between dominance and leader effectiveness. This finding was corroborated later on by a more extensive meta-analysis conducted by Hoffman et al. (2011).Warmth, which defines the second axis of the circumplex, has almost not been

studied in the context of work psychology and management (or maybe studies of the research concerning with warmth were not published due to publication bias).

There are a few reasons to expect that warmth would be positively linked to leader effectiveness, however, also reasons why the relationship between warmth and leader effectiveness should be negative.

1.1 Warmth as a positive predictor of leader effectiveness

A warm leader is cooperative, friendly, pleasant, sociable, is willing to compromise (Leary 1957), is generous, caring, trusting and tries to please others (Gurtman and Balakrishnan 1998). Those attributes predispose her to creating a pleasant work environment, exhibiting an interest in and maintaining good relationships with her followers. Positive aspects of leader trait warmth (distal leader characteristics) can be reflected in a leader behavior (proximal leader characteristics) called 'consideration' and in 'transformational leadership'. "Consideration refers to leadership behavior that involves concern for employees' well-being, expressions of support, and displays of warmth and approachability" (Lambert et al. 2012, p. 913). Transformational leadership contains four dimensions, including 'intellectual stimulation' and 'individualized consideration' (e.g. Howell and Avolio 1993; Bass 1997; Judge and Piccolo 2004). Intellectual stimulation is represented by behavior through which the leader increases the involvement of her followers in problem solving and increases their autonomy and proactivity (Avolio and Bass 2004). Such behavior, in our opinion, requires the ability to cooperate, trust in followers and willingness to accept a compromise if the leader's opinion differs from the opinion of her followers. Individualized consideration is represented by behavior that induces in the followers feelings of their own importance for the team (Avolio and Bass 2004). In order to achieve this, each leader has to provide clear evidence that each follower is for him a unique personality. The leader also has to be interested in her followers (Sashkin 2004) and play the role of a teacher as well as that of a coach (Bass 1997). Such behavior, in our opinion, requires a friendly attitude, care for the followers and trust in others. A leader high in warmth may therefore be better suited for intellectual stimulation and individualized consideration and thus also for transformational leadership. The existence of a relationship between a leader's warmth and transformational leadership is supported by the research of de Vries (2008), in which out of all interpersonal traits, warm-agreeable was observed to be the best predictor of transformational leadership (r = .65). Transformational leadership is a strong predictor of various leadership outcomes (Lowe et al. 1996; Keller 2006) and above mentioned consideration relates moderately strong to leader effectiveness (Judge et al. 2004). Those leadership behaviors could therefore explain the positive relationship between a leader's warmth and effectiveness.

McCrae and Costa (1989) identified the love (warmth) axis of the personality circumplex with the Big Five trait 'agreeableness'. Trapnell and Wiggins (1990) found a positive correlation between agreeableness and love (warmth). Agreeableness is, however, a personality trait that is, according to a meta-analysis, a (rather weak) predictor of leader effectiveness (Judge et al. 2002; DeRue et al. 2011). The relationship between agreeableness and warmth therefore allows support for a potential existence of a relationship between a leader's warmth and effectiveness.

1.2 Warmth as a negative predictor of leader effectiveness

Next to the positive aspects of warmth, there are also negative aspects worth mentioning.

A warm leader could be overconventional, may agree at all times with everyone, it could be easy to influence her (Leary, 1957) and she may be too generous and permissive in dealing with others (Alden et al. 1990). A warm leader can thus be perceived as soft, indecisive and inconsistent. Such a leader could potentially not be perceived as a good leader, and it can be difficult for the leader to direct her group to quality performance and results.

Those maladaptive characteristics of leader's warmth resemble laissez-faire leadership (or non-leadership; Bass 1999), which is a strong negative predictor of leader effectiveness (Judge and Bono 2000; Bass et al. 2003; Judge and Piccolo 2004).

1.3 Interaction of leader's warmth and dominance

Warmth can boost a leader's effectiveness thanks to a good relationship and individualistic approach. However, her warmth should not be accompanied by inconsistency, indecisiveness and passive attitude. What kind of leader is consistent, decisive and active? According to the interpersonal circumplex (Leary, 1957), it is the dominant leader who has a propensity toward having situations under control and who structures them rather than being passive and malleable. We believe that a dominant leader can utilize the benefits of high warmth adequately and simultaneously does not manifest the negative attributes linked with high warmth.

Contrary to that, a leader with low dominance but exhibiting high warmth and willingness can be seen negatively. According to the definition of the interpersonal circumplex, warmth and dominance should be independent (Leary, 1957; Gurtman and Balakrishnan 1998), as supported by findings of Hofsess and Tracey (2005). This reflects the potential existence of dominant and non-dominant leaders with high warmth. We hypothesize that leader dominance moderates the relationship between leader warmth and leader effectiveness. We believe that among dominant leaders, the relationship between warmth and leader effectiveness is positive, while in non-dominant leaders it is negative. Lastly, we suppose that there is not a relationship between warmth and effectiveness among moderately dominant leaders.

2. Method

2.1 Sample

We collected data from the four-month long management simulation game, during which we watched CEOs of fictitious companies in a standardized environment. The management simulation game was attended by a total of 210 CEOs, of which 184 (88%) completed voluntary self-assessment questionnaires regarding their warmth and dominance. The respondents received a diagnostic report covering their profile of interpersonal characteristics as a reward for their participation. Most of the CEOs were men (77 %).

Each CEO was evaluated by her followers who assessed the degree of her leadership emergence and perceived leader effectiveness. Each CEO was rated on average by 18.15 (*SD* = 2.86) followers. Overall, the evaluation involved 3,340 followers (response rate was 91.13%). All 3,340 employees (followers) and 184 CEOs (leaders) were undergraduates at two Czech business schools. Their participation in the management simulation game was part of their curriculum.

2.2 Procedure

The Management Simulation Game is a long-term simulation of the car market and a part of courses at two business schools in the Czech Republic. Teams of students represent the management of automobile companies that sell their products to the computer simulated market. Every company is led by a CEO who is elected from among company members shortly after the start of the game. The CEO and his or her subordinates are rewarded with play money during the course of the game, which is later translated into part of their course grade at the end of the semester. The CEO has great powers that may be delegated to the subordinates. The CEO has the final word though, for example, when deciding on corporate strategy, organizational structure, the distribution of work, salary, financial bonuses, and during layoffs and recruitment (Smutny et al. 2013).

Over the course of the game, players have a number of options through which they can affect the performance of their businesses. In seven rounds, players decide on the number of cars produced in each round, optimize production costs, invest in research, determine the basic equipment of the car, create marketing documentation, create financial statements, make analyses of financial markets, and act on loans with banks.

The Management Simulation Game therefore approximates the environment of the real economy. The Management Simulation Game is suitable research environment as it a) allows for comparing similar teams, b) allows for a reduction of the impact of external variables affecting research in real businesses, c) allows access to data on the performance of individual companies and generates high returns when collecting data using questionnaires (Smutny et al. 2013).

We obtained the data on group performance of all teams from the database of the Management Simulation Game. We collected the data over eleven semesters (10 – 28 teams played each semester) between the years 2008 – 2013.

2.3 Measures

2.3.1 Leader effectiveness

Leader effectiveness was measured as the effectiveness of CEOs of game companies. Individual CEOs were selected based on a consensus of the followers, and therefore the position of each CEO in the Management Simulation Game is a leadership position. As recommended by Yukl (2008), we used various indicators of leader effectiveness – *group performance*, *perceived leader effectiveness* and *leadership emergence*. Using various indicators allows understanding of the influence of independent variables on various aspects of effectiveness.

Group performance is an objective "performance indicator" (Dinh and Lord 2012) demonstrating the success of a particular team. *Perceived leader effectiveness* and *leadership emergence* represent "leadership perception indicators" (Dinh and Lord 2012). We obtained the score of *perceived leader effectiveness* and *leadership emergence* by aggregating the evaluations of subordinates. To assess *leadership emergence*, we used the five questions with a three-point scale (coded 0, 1 or 2), which the subordinates responded in order to evaluate the leadership of their CEO. The questions assessed leadership emergence from five different perspectives: 1. how the CEO acted in their role in the game that was inherently a leadership role; 2. whether the CEO was perceived to be a leader during the course of the game; 3. whether the CEO was perceived as someone who could be a leader elsewhere and under other circumstances; 4. whether the CEO evoked respect; 5. whether working with the CEO imparted a sense of pride. To assess *perceived leader effectiveness,* the subordinates answered two questions concerning the assessment of the impact of the CEO on company effectiveness based on: 1. the efficiency of the outcome; and 2. process efficiency. Both sets of questions show internal consistency (α = .96).The variables of *leadership emergence* and *perceived leader effectiveness* were determined by the average sum of the responses of all followers of each leader on all scale items divided by the number of items. It can therefore take values 0-2.

We measured *group performance* through the profitability of each company under the leadership of the CEO over the entire course of the simulation game. All companies begin the simulation game in comparable conditions. Their performance can thus be assessed through profits during the seven game rounds. Since the research was conducted in 11 different semesters, the game settings differed slightly in individual sessions. For instance, a different number of students participated in the game and thus the number of participating companies varied in each semester. Additionally, changes in some game parameters should have prevented the adopting and copying of successful models developed by other companies in the past semesters. Therefore, in order to calculate *group performance*, we compared the outcome of each company in management simulation game always with the results of other companies which participated in the game in the same semester. The variable *group performance* is determined by the accumulated profits of the company throughout the game, divided by the average cumulative gain of the other companies in the same semester; it thus reflects the achieved percentage of the average profits in the game.

2.3.2 Warmth and dominance

To measure the leader's *warmth* and *dominance*, we used the ICL questionnaire designed by Leary, LaForge and Suczek (translated and adjusted to Czech by Kožený and Ganický 1976). The questionnaire is a validated and frequently used Czech translation of the ICL. Other questionnaires of interpersonal characteristics do not have a valid Czech translation. The ICL has 8 scales (each consisting of two subscales) corresponding to eight interpersonal personality characteristics, each of which is measured via sixteen binomial items. Items are in the form of adjectives in which each participant assesses to what extent each item describes her. It is therefore a forced choice between two options. Two of the eight scales are the scales of warm-agreeable (*warmth*) and assured-dominant (*dominance*). During the standardization on the Czech population the scale of assured-dominant reached sufficient internal consistency r_{tt}= .74 - .75 and the scale of warm- agreeable reached internal consistency r_{tt}= .64 - .65. The stability of the scales illustrating the test-retest reliability at an interval of ten days, reaches a rho = 0.69 for assured-dominant and rho = 0.79 for warm-agreeable (Kožený and Ganický 1976).

We computed the scores of *warmth* and *dominance* as a sum of all 16 self-rated items (coded 0 or 1). We also considered using the circular structure of the interpersonal model and calculate the leader's *warmth* and *dominance* from multiple scales, as these scales relate to the love and power axes of the circumplex. However, Alden et al. (1990) point out that the ICL scales have poor circumplex properties indicated by significant measurement gaps in two of the four quadrants of the circumplex. These gaps preclude using the ICL for circumplex measurement and diagnosis. Furthermore, if we used the formulas for computing the love and power axes, the variables *warmth* and *dominance* would be dependent, because both formulas contain 4 same ICL scores (e.g. 'gregarious-extraverted'). Therefore, we used only the scales of warm-agreeable and assured-dominant that best express a leader's warmth and dominance.

3. Results

The leader effectiveness indicators used in this study are not independent and exhibit statistically significant positive correlations. However, it is meaningful to analyze them separately, because they have only 18 % – 59 % of common variance. For descriptive statistics and correlations between variables, see Table 1.

Table 1: Descriptive statistics and Pearson correlations

	M	SD	1	2	3	4
1. Warmth	8.72	3.03				
2. Dominance	9.77	2.99	.10			
3. Perceived leader effectiveness	1.46	0.39	.05	-.01		
4. Leadership emergence	1.38	0.34	.02	.05	.77**	
5. Group performance	1.07	0.52	.03	.03	.71**	.43**
*Note. **p < .01*						

To test the hypotheses, we performed three multilevel regression analyses with three different dependent variables (*perceived leader effectiveness, leadership emergence, group performance*). The independent variables were entered in two steps. First we estimated a model with *warmth* and *dominance*; then the interaction *warmth* x *dominance* was entered.

Neither *warmth* nor *dominance* relates to any of the leader effectiveness indicators in the 1st step of regression analysis (see Table 2, Table 3 and Table 4), and the models without interaction do not explain leader effectiveness well. Entering the interaction in the 2nd step of analysis significantly improved all three models. The models with interaction explain 2% - 6% of the variance of leader effectiveness. The interaction among *warmth* and *dominance* is in significantly positive strong relationship with all three leader effectiveness indicators. Thus, our hypothesis is supported.

Table 2: Moderation – warmth and dominance on perceived leader effectiveness

	B	SE	β	t	p
1. Step					
(Constant)	1.43	0.13		11.44	<.01
Warmth	0.01	0.1	.05	0.71	0.48
Dominance	-0.00	0.1	-.02	-0.23	0.82
2. Step					
(Constant)	2.10	0.31		6.84	<.01
Warmth	-0.07	0.03	-.54	-2.08	.04
Dominance	-0.07	0.03	-.54	-2.34	.02
Warmth x Dominance	0.01	0.00	.84	2.39	.02
Note. Dependent variable = Perceived leader effectiveness; R^2 (1. step) = .00 (p = .77); ΔR^2 = .03 (p = .02)					

Table 3: Moderation – warmth and dominance on leadership emergence

	B	SE	β	t	p
1. Step					
(Constant)	1.31	0.11		12.09	<.01
Warmth	0.00	0.01	.02	0.26	.79
Dominance	0.01	0.01	.05	0.61	.55
2. Step					
(Constant)	1.80	0.27		6.74	<.01
Warmth	-0.05	0.03	-.48	-1.86	.07
Dominance	-0.05	0.03	-.40	-1.72	.09
Warmth x Dominance	0.01	0.00	.71	2.02	<.05
Note. Dependent variable = Leadership emergence; R^2 (1. step) = .00 (p = .79); ΔR^2 = .02 (p < .05)					

Table 4: Moderation – warmth and dominance on group performance

	B	SE	β	t	p
1. Step					
(Constant)	0.97	0.17		5,91	<.01
Warmth	0.01	0.01	.03	0.42	.67
Dominance	0.01	0.01	.03	0.39	.70
2. Step					
(Constant)	2.21	0.40		5.55	<.01
Warmth	-0.14	0.04	-.80	-3.13	<.01
Dominance	-0.12	0.05	-.70	-3.09	<.01
Warmth x Dominance	0.01	0.00	1.18	3.40	<.01
Note. Dependent variable = Group performance; R^2 (1. step) = .00 (p = .84); ΔR^2 = .06 (p < .01)					

To describe the direction of moderation effect and to find the regions of significance, we chose the Johnson-Neyman technique using a plug-in for SPSS created by Hayes (2012). The relationship between leader warmth and effectiveness is always negative if the leader's dominance is low. By the moderate high dominance, the coefficients describing relationship between leader warmth and effectiveness are close to zero. There is a positive relationship between leader warmth and effectiveness, if the leader's dominance is high. The Johnson-Neyman technique found (α = .05) one boarder value of dominance for prediction of perceived leader effectiveness (dominance = 12.05), and 2 two boarder values of dominance for prediction of group performance (dominance = 7.24 and 11.51). The relationship between warmth and perceived leader effectiveness is insignificant, if the value of dominance is below 12.5, and is significantly positive, if the dominance is higher. The relationship between warmth and group performance is insignificant, if the value of dominance is between 7.24 and 11.51, is significantly positive by higher dominance and significantly negative, if the dominance is lower.

4. Discussion

The results of this study support the hypothesis that the relationship between the leader warmth and effectiveness is moderated by leader dominance. Moderation is most significant when using an objective criterion of group performance as an indicator of leader effectiveness. If the leader is dominant, her cooperativeness, friendliness and willingness to compromise further contributes to higher group performance. On the contrary, the greater warmth of a leader with low dominance can be associated with lower group performance. Low dominance leads to manifestation of maladaptive characteristics of warmth. This kind of leader may agree with everyone at all times and it could be easy to persuade her.

Interestingly, the moderation is less significant when, instead of using an objective indicator of effectiveness, a subjective evaluation of leader effectiveness by followers is taken into account. It seems that dominance and warmth influence overall group performance to a greater extent than the perception of the leader by her followers. That is a rather surprising finding, as leader traits frequently relate to leadership perception rather than group performance (DeRue et al. 2011). Further research could explain the difference in the power of interaction between leader warmth and dominance on various indicators of effectiveness that would specifically focus on potential mediators of the influence of warmth and dominance on leadership outcomes. As already mentioned, leader traits are distal leader characteristics, whose impact on effectiveness is probably mediated by more proximal characteristics such as leader behaviors (Dinh and Lord 2012).

Another interesting finding of our study is that the correlation between leader dominance and effectiveness was close to zero and insignificant. This is inconsistent with the conclusions of meta-analysis (Judge et al. 2002; Hoffman et al. 2011). Those studies, however, reported only a weak to moderate relationship between leader dominance and effectiveness and might have been affected by publication bias. Based on the results of our study, neither dominance nor warmth by themselves impact leader effectiveness. A leader needs to have both in order to be effective. However, the different relationship between leader dominance and effectiveness might be a result of specifics of our sample. A leader's dominance can have a different influence on a team of students than for example on a team of experienced professionals or workers.

One of the limits of our study is that it concerns only two leader traits and indicators of leadership effectiveness. Taking into account leader behaviors, situational factors and the characteristics of followers could provide a more complex perspective on the explored relationship and would enable a consideration of its moderators and mediators. The results should be approached with respect to the environment of the Management Simulation Game conducted with college students. Replication of the study in another context (e.g. business, NGO) could help generalizing the results to other populations.

Some of the strengths of the study are its large sample, the evaluation of leaders by a great number of followers, the taking into account of three indicators of leader effectiveness, and especially the standardized environment of the Management Simulation Game — which enabled a controlling for external variables. Our study explores the role of interpersonal traits among leadership traits, explains the underexplored relationship between leader warmth and effectiveness, and illustrates the importance of examining various antecedents of leadership simultaneously.

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